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Geoarchaeology and palaeoenvironment of the Medjerda delta (Tunisia)

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(Figure 1: Evocation of Utica in 46 BC according Daux, 186)

1. INTRODUCTION

Interdisciplinary project, starting from an archaeological problem...

In the mean time, on the arrival of his men of war, Curio ordered proclamation to be made to the merchant ships, which lay at anchor before Utica, in number about two hundred, that he would treat as enemies all that did not set sail immediately for the Cornelian camp.
(J. Caesar, *The Civil Wars*, I, 31)

► **Utica was a maritime and port city** (ancient authors) but:

- today, the ancient city is located on a promontory in the heart of the Medjerda delta, 12 km inland;
- the location of the Phoenician and Roman port infrastructures remains unknown.

4. RESULTS

Core UCN1 («Utique Compartiment Nord») (see fig. 5)

Where? In a marshy area, North of the «North compartment» of the delta.

Why? To determine if this area could have been a marine bay during the occupation of the site. This bay could be a potential location for harbour infrastructures (quay, mole, ...) prior to clogging of the bay by the sediments carried by the wadi.

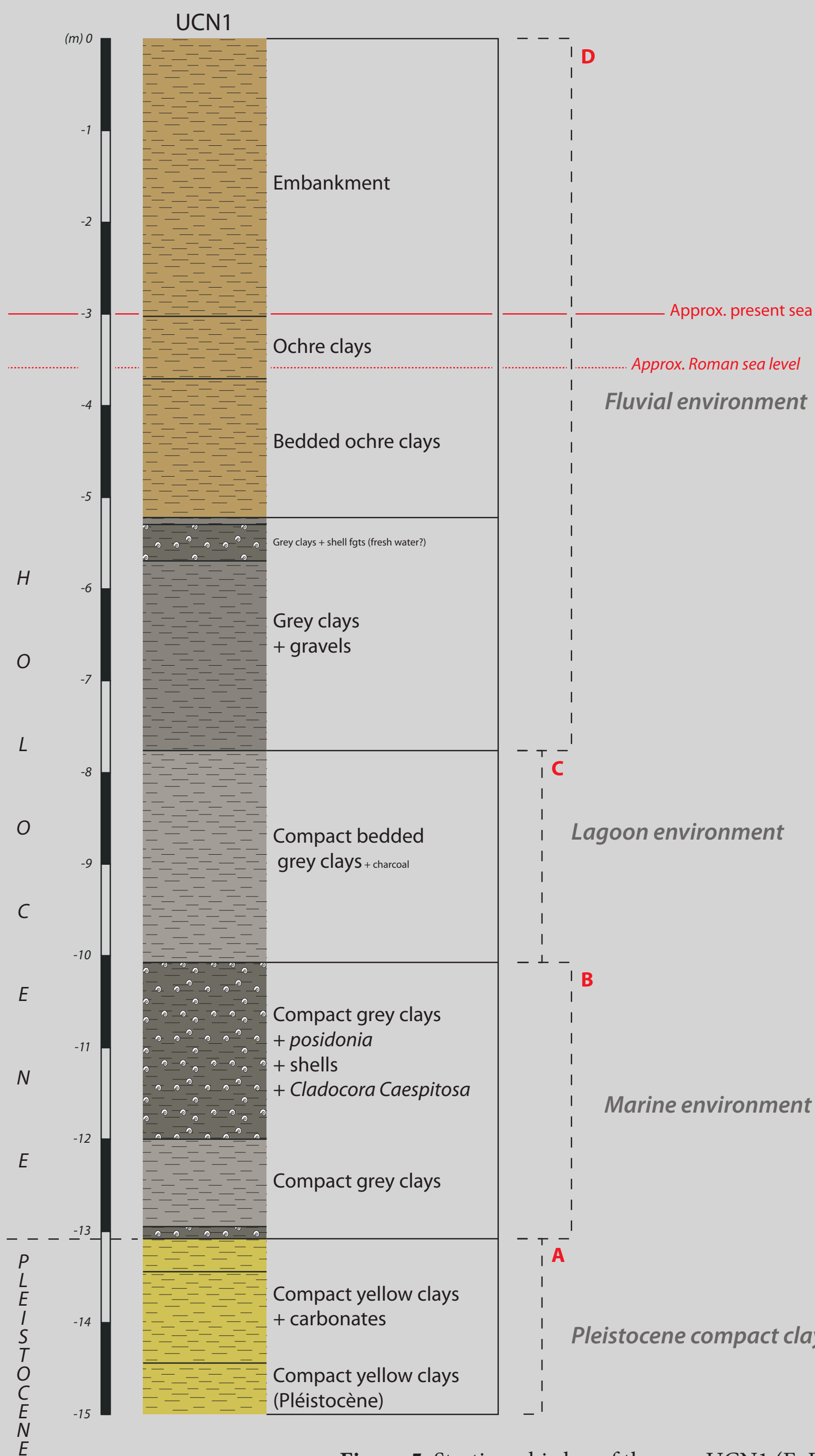


Figure 5: Stratigraphic log of the core UCN1 (E. Pleuger)

So? ► This area was effectively covered by the sea (Unit B) at any given time, which will be determined by the next radiocarbon dating.

► Then, the sediments carried by the Medjerda gradually clog the bay (lagoonal and then fluvial environment).

► Sea inlet and/or marine bay? The size of the area covered by the sea during Antiquity has to be precised with two other points planned for the next coring campaign.

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2. AIMS

Reconstruction of the Medjerda delta landscape changes during the Holocene and of the ancient coastline

► hypothesis on the location of the **Utica harbour infrastructures**

3. MATERIAL & METHODS

• **In the field:** mechanical extraction of cores (15-20 m deep) to reach the early Holocene. Two of these cores are particularly developed in this poster.

• **In the laboratory:** particle size analysis and quartz morphoscopy, sedimentological and biological analysis, mineralogical and geochemical approaches, radiocarbon dating.



Figures 2 & 3: The mechanical drill and a core UCN1 section (E. Pleuger)



Figure 4: Location map of the Medjerda delta and the coring area; evocation of the ancient coastline (from Google earth; DAO E. Pleuger)

Core UTC2 («Utica 2») (see fig. 6)

Where? In a marshy zone, on the north-western side of the promontory of Utica.

Why? ► Paskoff and Troussset (1992) considered this the most probable location of the ancient harbour basins of Utica;

► This hypothesis is also supported by the palaeogeographical study of Delile *et al.* (2015) (see fig. 7).

So? ► This point was covered by a **peat-bog 6th c.-10th c. AD (Unit B)**.

► Communication between the city and the sea would have been through an ancient sea corridor located to the west of the northern part. As the alluvial fans at the mouth of the river thickened and progressively filled the northern part of the Utica Bay, this ancient sea corridor became narrower in the Roman period and completely disappeared in the early 5th/mid-6th century A.D. In this period a peat bog developed on the northern side of the Utica promontory and thus sealed the fate of Utica as a maritime harbour.

► The city is definitely isolated from the sea by the 6th c. AD.

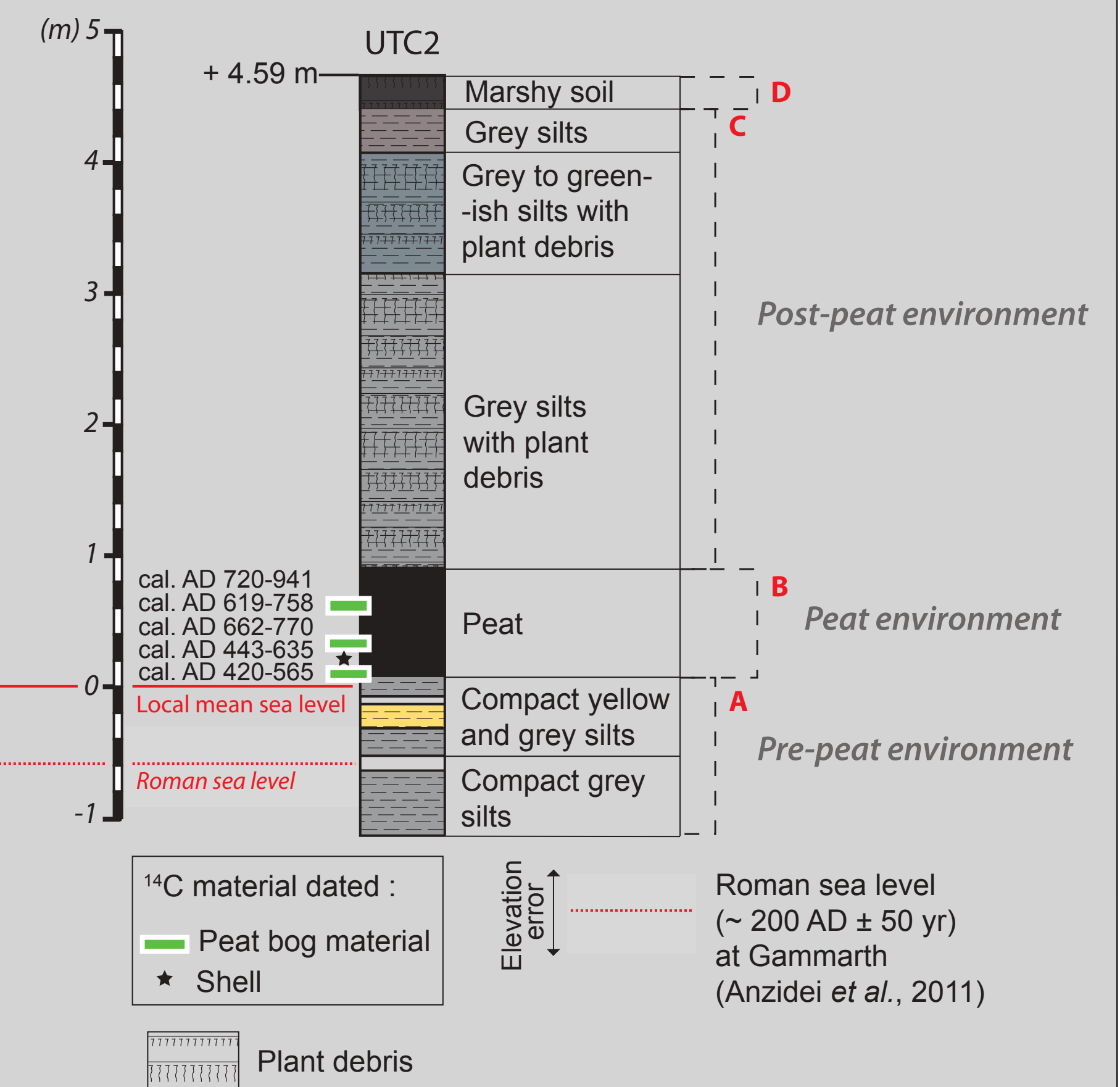


Figure 6: Stratigraphic log of the core UTC2 (from Delile *et al.*, 2015)

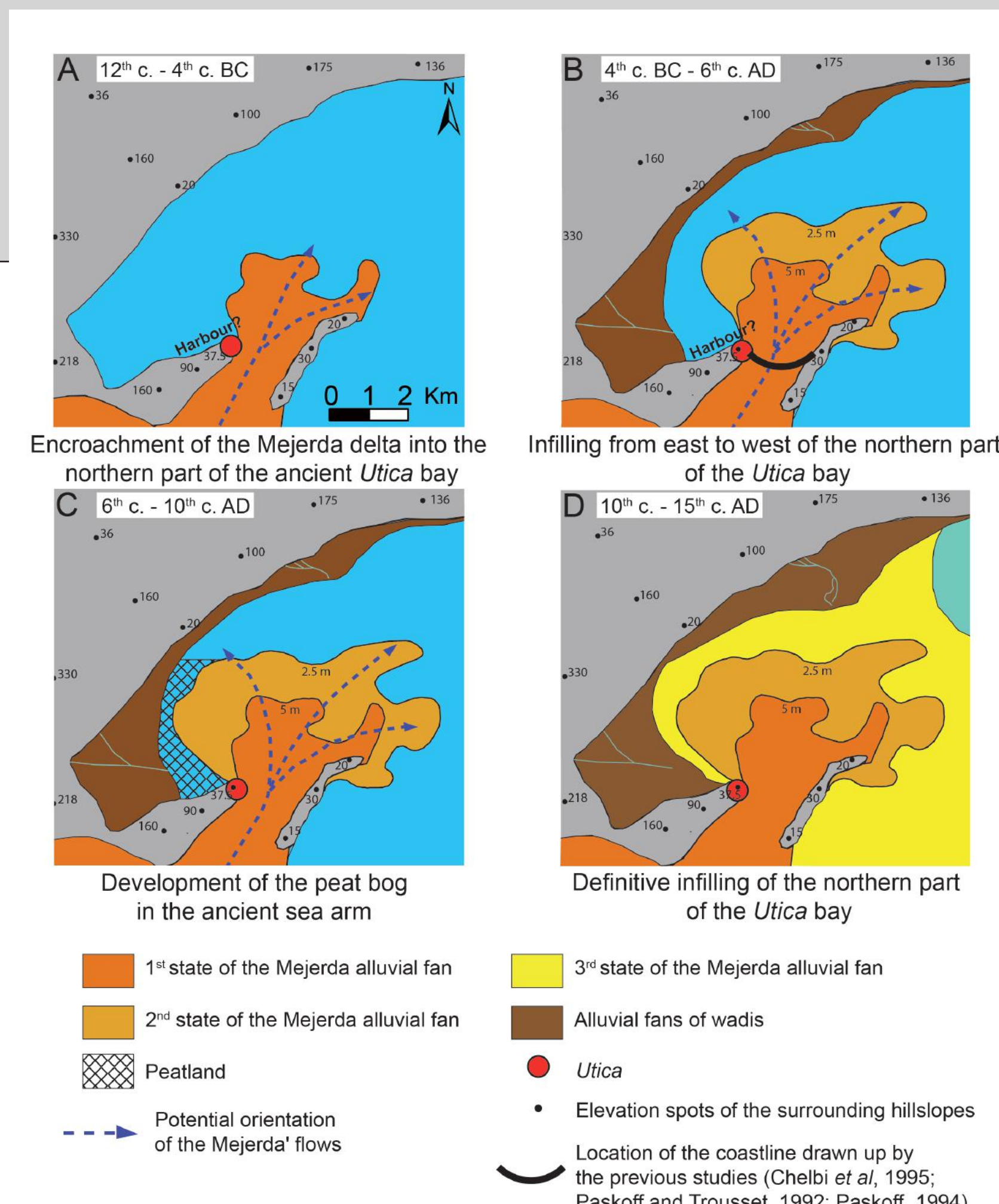


Figure 7: Four maps showing hypothesis of the palaeogeographical evolution of the northern part of the Mejerda delta (Delile *et al.*, 2015)

5. PERSPECTIVES

- Dating of the marine units in the core UCN1:
 - * to establish the chronological framework of the retreat of the coastline and of the clogging of the bay;
 - * to understand the passage of the Medjerda into the «North compartment» by the corridor Utica-Kalāat.
 - Is this marine presence contemporary or older than the occupation of the city of Utica?
- Laboratory analyses for palaeoenvironmental reconstruction
- Next coring campaign:
 - * in the «North compartment» to evaluate the maximum extent of the marine bay
 - * deeper coring in the same zone than UTC2, to see if the harbour could have been in use during the High Roman Empire
 - * in the «corridor» to know if the Kalāat el-Andalous promontory was an island during Phoenician times

